

COUNTRY ANALYSIS BRIEFS

Algeria

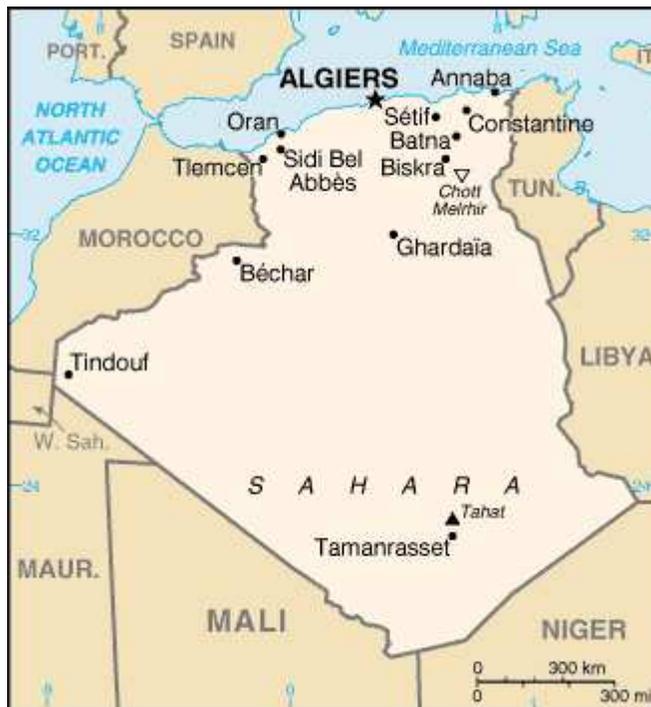
Last Updated: May 2009

Background

Algeria's hydrocarbon sector accounts for 97 percent of export revenues.

Algeria is an important exporter of oil and natural gas and is a member of the Organization of the Petroleum Exporting Countries (OPEC). In 2008, Algeria produced 1.42 million bbl/d of crude oil. Algeria was the fourth largest crude oil producer in Africa after Nigeria (1.94), Angola (1.89), and Libya (1.71) and the largest total oil liquids producer on the continent. As a member of OPEC, Algeria's crude oil production can be constrained by the group's crude production allocations, but Algeria also produced 450,000 bbl/d of condensate and 357,000 bbl/d of natural gas liquids, which are exempt from OPEC quotas, bringing total oil liquids production for the year up to a total of 2.23 million bbl/d. Domestic oil consumption accounted for about 13 percent of total production.

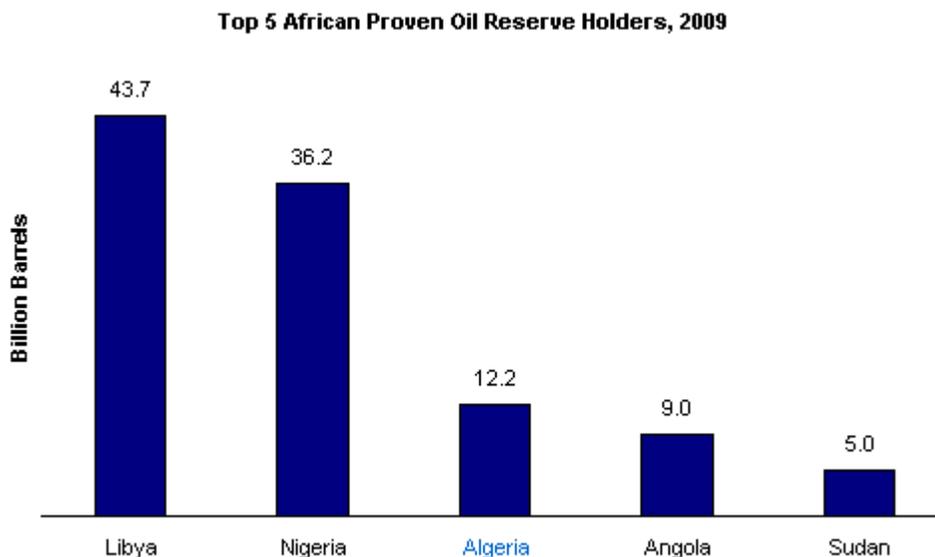
Algeria was the sixth largest natural gas producer in the world in 2007 after Russia, the United States, Canada, Iran, and Norway. Algeria produced 3.03 trillion cubic feet of natural gas in 2007, of which 70 percent was exported and 30 percent was consumed domestically.



Oil

Algeria is a net oil exporting country and a member of the Organization of Petroleum Exporting Countries (OPEC).

According to *Oil and Gas Journal (OGJ)*, Algeria contained an estimated 12.2 billion barrels of proven oil reserves as of January 2009, the third largest in Africa (behind Libya and Nigeria). Algeria's largest proven reserves are located in the eastern half of the country. Algeria's Saharan Blend oil, 45° API and 0.1 percent sulfur content, is among the highest quality in the world. European countries rely on Algerian oil to help meet increasingly stringent European Union regulations on sulfur content of gasoline and diesel fuel.



Source: *Oil and Gas Journal*

Production and Development

Algeria produced an average of 1.42 million barrels per day (bbl/d) of crude oil in 2008. Together with 450,000 bbl/d of condensate and 357,000 bbl/d of natural gas liquids, Algeria averaged 2.23 million bbl/d of total oil liquids production during 2008, up from 2.17 million bbl/d in 2007.

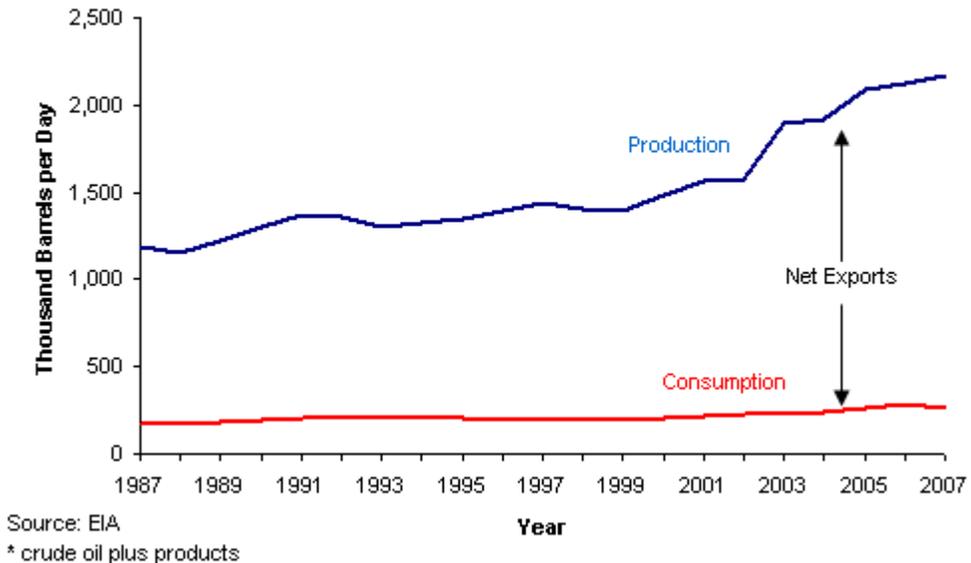
State-owned Sonatrach dominates oil and natural gas production in Algeria. Algeria has increasingly allowed greater foreign investment in the sectors, and foreign oil producers have entered into numerous partnership agreements with Sonatrach.

Sonatrach operates the largest oil field in Algeria, Hassi Messaoud. Located southeast of Algiers, Hassi Messaoud produced around 400,000 bbl/d of crude in 2008. Sonatrach has recently awarded new contracts to increase production over the next few years by developing new areas of the field and by adding a new LPG treatment plant. Other major fields operated by Sonatrach include: Tin Fouye Tabankort Ordo, Zarzaitine, Haoud Berkaoui/Ben Kahla, and Ait Kheir.

Algeria is taking steps toward maintaining its oil production capacity by developing new oilfields to compensate for the decline in older fields. In an interview in Vienna in March 2009, Energy Minister Khelil said that some of the new capacity would replace declines in older fields, and that Algeria's long-term target was to maintain crude oil production capacity at its current level.

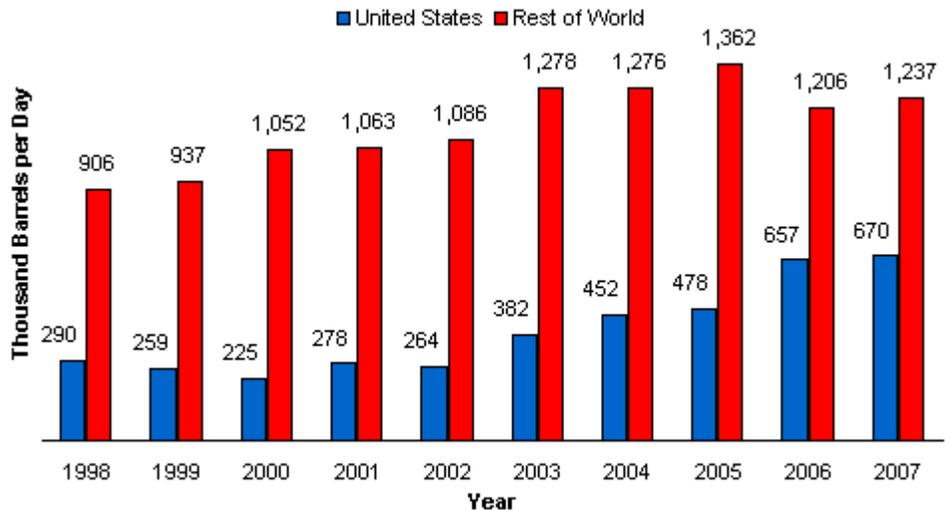
Foreign oil operators have steadily increased their share of Algeria's oil production. The largest foreign oil producer is Anadarko, with total production capacity of more than 500,000 bbl/d, from its operation at the combined Hassi Berkine South and Ourhoud fields in eastern Algeria. As of the fourth quarter of 2008, Anadarko had gross oil production of 422,000 bbl/d from the project. Anadarko is developing seven new oil and natural gas fields in Block 208 of the Berkine Basin; with output projected to reach 150,000 bbl/d of crude oil and condensate. Eni operates (among others) the Rhourde Oulad Djemma (ROD) project in southeastern Algeria, a series of six satellite fields. Eni's equity production at the end of 2008 was 84,000 bbl/d. Additional foreign investors include: BG Group, BP, Cepsa, Conoco-Phillips, Eni, Gazprom, Repsol, Ruhrgaz, Shell, Statoil and Total.

In December 2008, Algeria held a licensing round for foreign development of oil and natural gas reserves. This licensing round was the first to be held under the 2006 law that gives Algerian state-owned Sonatrach a mandatory minimum 51% share in every oil and gas exploration contract awarded to foreign companies. Only four foreign firms won oil and gas exploration permits in December, and 11 zones attracted no bids. Algerian Energy and Mines Minister Chakib Khelil blamed the weak global economy for the mixed results of the 2008 licensing round during a signing ceremony for the four winning bidders, ENI, Ruhrgas, Gazprom, and BG Group PLC on January 17, 2009. Many of Algeria's latest discoveries are being made in basins near In Salah in the southwest, where reservoirs appear to be relatively small, and pipelines still lacking.

Algeria's Total Oil Liquids* Production and Consumption, 1987-2007

Exports

Algeria is a large oil exporter. Algeria's domestic oil consumption was 299,000 bbl/d in 2008 and estimated net oil exports (including all liquids) reached 1.93 million bbl/d. EIA estimates that the United States imported 547,000 bbl/d from Algeria, or 4 percent of total U.S. oil imports in 2008. This was 28 percent of Algeria's oil exports during 2008. According to the International Energy Agency (IEA), 34 percent of Algeria's 2007 oil exports to the Organization for Economic Cooperation and Development (OECD) countries went to European countries, including the Netherlands (8 percent), France (6 percent), Spain (5 percent), and Germany and the United Kingdom (4 percent each).

Algeria's Oil Exports to the United States and Rest of World, 1998-2007

Downstream

In 2009, Algeria had total refining capacity of 450,000 bbl/d. Naftec, a subsidiary of Sonatrach, operates Algeria's four refineries. The Skikda refinery (300,000 bbl/d) provides the bulk of Algeria's refined products production. The 30,000-bbl/d Hassi Messaoud refinery supplies products to southern Algeria, while the 60,000-bbl/d Algiers refinery processes crude from Hassi Messaoud for consumption in the capital. The coastal 60,000-bbl/d Arzew refinery produces

products for domestic consumption and export. A new refinery is projected at Tiaret, to be completed in 2013. Sonatrach said in November 2008 that companies interested in building this refinery had been shortlisted and tenders would be issued in July or August of 2009.

Pipelines and Export Terminals

Algeria uses seven coastal terminals to export crude oil, refined products, liquefied petroleum gas (LPG) and natural gas liquids (NGL). These facilities are located at Arzew, Skikda, Algiers, Annaba, Oran, Bejaia, and La Skhirra in Tunisia. Arzew handles about 40 percent of Algeria's total hydrocarbon exports, including all of its NGL, LPG, and oil condensate exports.

Algeria's oil pipeline network facilitates the transfer of oil from interior production fields to the export terminals. Sonatrach operates over 2,400 miles of crude oil pipelines in the country. The most important pipelines carry crude oil from the Hassi Messaoud field to export terminals. Sonatrach also operates oil condensate and LPG pipeline networks that link Hassi R'mel and other fields to Arzew. Sonatrach has expanded the Hassi Messaoud-Arzew pipeline, the longest in the country, to include a second, parallel line that more than doubles the capacity of the existing line.

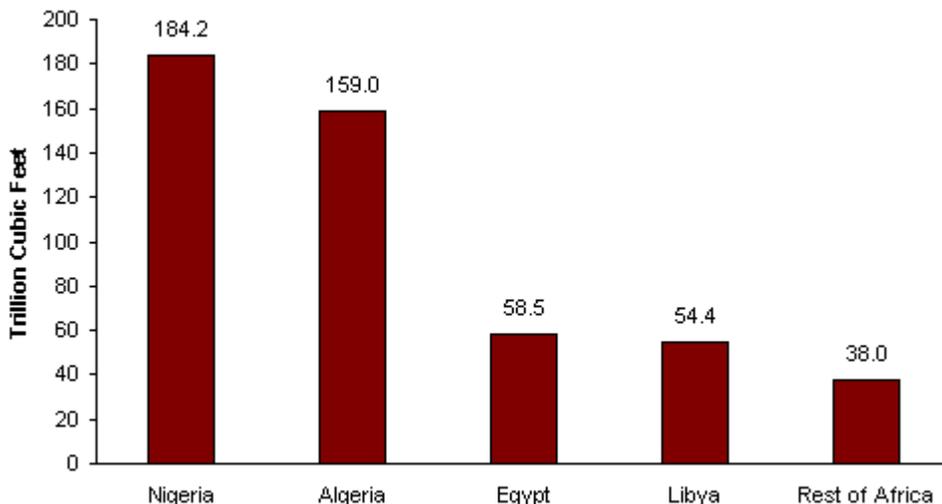
Sonatrach announced in 2008 that US\$5.5 billion would be spent by 2012 on renovating and extending its domestic oil and gas pipelines. Algeria's major crude oil export pipelines are: the 498-mile Haoud el Hamra to Arzew pipeline, the parallel 511-mile Haoud el Hamra to Arzew pipeline, the 415-mile Haoud el Hamra to Bejaia line, the 482-mile In Amenas to La Skhirra, Tunisia, pipeline, and the 400-mile Haoud el Hamra to Skikda pipeline.

Natural Gas

Algeria is a significant producer of natural gas and liquefied natural gas (LNG).

According to *Oil and Gas Journal (OGJ)*, Algeria had 159 trillion cubic feet (Tcf) of proven natural gas reserves (the eighth-largest natural gas reserves in the world) as of January 2009. Algeria's largest gas field is Hassi R'Mel, discovered in 1956 and holding proven reserves of about 85 Tcf. Hassi R'Mel accounts for about a quarter of Algeria's total dry natural gas production. The remainder of Algeria's natural gas reserves come from associated (they occur alongside crude oil reserves) and non-associated fields in the south and southeast regions of the country.

Top African Natural Gas Proven Reserve Holders, 2009



Source: *Oil and Gas Journal*

The country produced 3.03 Tcf of dry natural gas in 2007, and is the sixth-largest natural gas producer in the world and the second largest among OPEC-member countries after Iran. Algeria consumed 0.93 Tcf of dry natural gas in 2007. The remaining natural gas is exported, much of it going to Europe and some to the United States. The Algerian government has encouraged the domestic use of natural gas, which represented 60 percent of the country's total energy consumption in 2007.

State-owned Sonatrach dominates natural gas production and wholesale distribution in Algeria, while state-owned Sonelgaz controls retail distribution. Algeria has increasingly allowed greater

foreign investment in the sector, and foreign gas producers, including BHP-Billiton, BP, Eni, Repsol, Statoil and Total, have entered into numerous partnership agreements with Sonatrach. There are also plans to allow foreign participation in the retail natural gas sector.

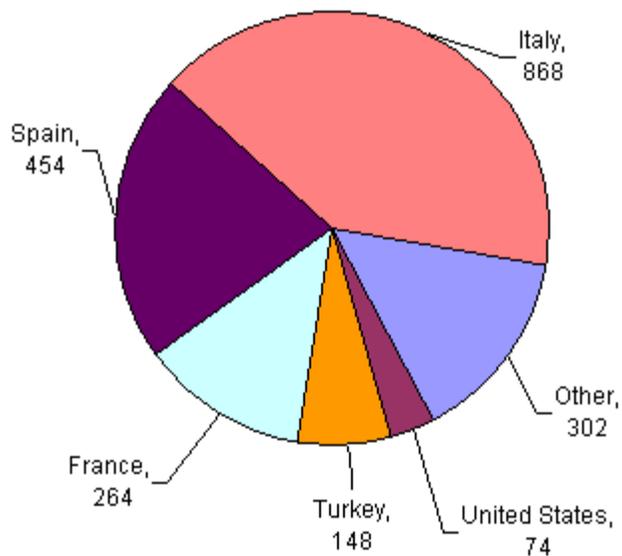
Domestic Pipelines

Algeria's domestic pipeline system centers on the Hassi R'Mel natural gas field. The largest pipeline systems connect Hassi R'Mel to liquefied natural gas (LNG) export terminals along the Mediterranean Sea. A 315-mile, 4.38-billion-cubic-feet-per-day (Bcf/d) system connects Hassi R'Mel to Arzew, while a 360-mile, 1.98-Bcf/d system connects Hassi R'Mel to Skikda. A smaller pipeline (270 miles, 690 Mmcf/d) also runs between Hassi R'Mel and Isser, near Algiers. Hassi R'Mel is the hub of Algeria's entire natural gas transport network, so pipelines connect to it from the country's major natural gas-producing regions.

Exports

Algeria's dry natural gas exports totaled 2.10 Tcf in 2007, down slightly from 2.17 Tcf in 2006. Almost two-thirds of Algeria's total natural gas exports currently move through two natural gas pipeline connections operating between Algeria and Europe; the remaining one-third of total natural gas exports is exported in the form of LNG. The 670-mile, 2.32-Bcf/d Trans-Mediterranean (Transmed, also called Enrico Mattei) line runs from Hassi R'Mel, via Tunisia and Sicily, to mainland Italy. Completed in 1983 and doubled in 1994, there are plans to construct an additional compressor station along the Transmed that could increase capacity to 3.48-Bcf/d. An international consortium, led by Spain's Enagas, Morocco's SNPP, and Sonatrach, operates the 1,000-mile, 820-Mmcf/d Maghreb-Europe Gas pipeline (MEG, also called Pedro Duran Farell), completed in 1996, which connects Hassi R'mel via Morocco with Cordoba, Spain, where it ties into the Spanish and Portuguese natural gas transmission networks.

Importers of Algerian Natural Gas - Billion Cubic Feet, 2007



Source: International Energy Agency

There are three new pipelines under construction or in planning:

Medgaz Pipeline

The 120-mile Medgaz will link Beni Saf, Algeria to Almeria, Spain, with an eventual extension to France. The US\$1.2 billion Medgaz is expected to be operating by September 2009, with an initial capacity of 390 Mmcf/d, increasing to 1.55 Bcf/d.

Galsi Pipeline

The 560-mile Galsi pipeline will run from Gassi R'Mel to El Kal, Algeria, underwater to Cagliari, Sardinia, overland to Olbia, Sardinia, and then underwater to Piombino, Italy, where it will be connected to the Italian national transfer network. The Galsi pipeline, currently under construction, will have initial capacity of 770-990 Mmcf/d and is expected to be completed by 2012.

Trans-Saharan Pipeline

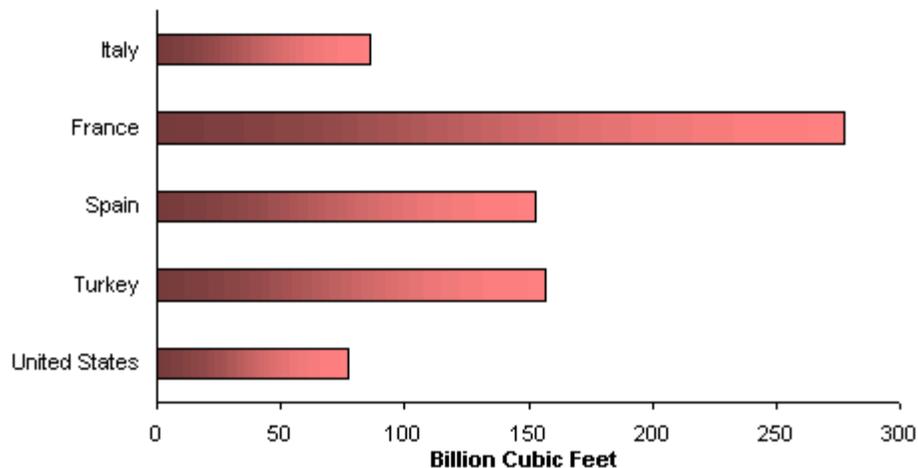
Sonatrach and the Nigerian National Petroleum Corporation aim to construct a 2,800-mile natural gas pipeline from Warri, Nigeria to Hassi R'Mel, via Niger. The pipeline would utilize the proposed Medgaz and existing Transmed pipelines to carry Nigerian natural gas to European markets. In February 2009, it was reported that representatives of Sonatrach and the Nigerian National Petroleum Corp. (NNPC) met in Lagos and disclosed they were close to finalizing plans for the \$12 billion project. However, the immense length and possible sabotage are two deterrent risks to the project moving forward.

Liquefied Natural Gas

Algeria's LNG exports currently make up about one-third of the country's total natural gas exports and are expected to increase in the mid-term, when the Skikda plant comes back online. About 898 Bcf of LNG was exported in 2007, compared with 844 Bcf in 2006. Most of Algeria's LNG exports go to Europe: about 729 Bcf in 2007 compared with 800 Bcf in 2006.

With the start-up of the Arzew GL4Z plant in 1964, Algeria became the world's first producer of liquefied natural gas (LNG). Algeria is the fourth largest exporter of LNG (behind Indonesia, Malaysia and Qatar), exporting around 11 percent of the world's total in 2006. Primary customers are France, Spain, and Turkey. Sonatrach has LNG export contracts with Gaz de France, Belgium's Distrigaz, Spain's Enagas, Turkey's Botas, Italy's Snam, and Greece's DEPA. In 2007, Algeria supplied 13 percent of OECD Europe's LNG imports. Also in 2007, Algeria exported 77 Bcf of LNG to the United States, some 10 percent of total U.S. LNG imports for that year. Algeria's largest LNG export terminal is the Arzew facility, whose three facilities combined produced an estimated 1,183 Bcf of re-gasified LNG in 2007. Other important terminals include Skikda and Algiers. However, the Skikda LNG plant is being rebuilt after an explosion in 2004 and is not expected to come back online until 2013.

Top 5 Importers of Algerian LNG, 2007



Sources: **United States:** EIA; **France/Spain/Turkey/Belgium:** OPEC

Profile

Energy Overview

Proven Oil Reserves (January 1, 2009E)	12.2 billion barrels
Oil Production (2008E)	2,229 thousand barrels per day
Oil Consumption (2008E)	299 thousand barrels per day
Crude Oil Distillation Capacity (2009E)	450 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2009E)	159 trillion cubic feet
Natural Gas Production (2007E)	3.03 trillion cubic feet

Natural Gas Consumption (2007E)	0.93 trillion cubic feet
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Electricity Installed Capacity (2007E)	6.5 gigawatts
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Electricity Production (2007E)	33.1 billion kilowatthours
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Electricity Consumption (2007E)	26.9 billion kilowatthours
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Total Energy Consumption (2007E)	1.5 quadrillion Btu*
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Total Per Capita Energy Consumption (2006E)	47.1 million Btu
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Energy Intensity (2007E)	6,493 Btu per 2000\$***
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Environmental Overview

Energy-Related Carbon Dioxide Emissions (2007E)	93.2 million metric tons
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Per-Capita, Energy-Related Carbon Dioxide Emissions (2006E)	2.8 metric tons
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Carbon Dioxide Intensity (2006E)	0.4 metric tons per 2000\$***
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Oil and Gas Industry

Organization	Sonatrach – State-owned company for exploration, transport and marketing of petroleum, natural gas and related products; Naftec – Operates and manages all refineries; Naftel – Domestic product distribution; Cogiz – Produces natural gas by-products.
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Major Oil/Gas Ports	Arzew (Algeria's largest crude oil export port), Skikda, Algiers, Annaba, Oran, Bejaia, plus the Tunisian facility of La Skhirra.
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Foreign Company Involvement	Agip, Anadarko, BHP Billiton, BP, Cepsa, Eni, Gaz de France, Gulf Keystone, Maersk, Petronas, Repsol, Rosneft, Statoil, Talisman, Total.
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Major Oil Fields	Hassi Messaoud, Hassi Berkine, Ourhoud, Bir Hebaa, Gassi El Agreb/Zotti, Menzel Ledjmet
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Major Natural Gas Fields	Hassi R'Mel, Rhourde Nouss, Rourde Nouss Sud-Est, Rhourde Adra, Rhourde Chouff, Rhourde Hamra fields.
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Major Crude Oil Export Pipelines	498-mile and 511-mile parallel lines Haoud el Hamra-Arzew; 415-mile Haoud el Hamra-Bejaia; 482-mile In Amenas-La Skhirra, Tunisia; 400-mile Haoud el Hamra- Skikda
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Major Refineries (capacity, bbl/d)	Naftec-Skikda (300,000), Naftec-Algiers (60,000), Naftec-Arzew (60,000), Naftec-Hassi Messaoud (30,000)
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* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA: Algeria Country Energy Profile](#)

[EIA: International Energy Statistics](#)

U.S. Government

[CIA World Factbook](#)

[U.S. Commerce Department Country Commercial Guide for Algeria](#)

[U.S. State Department Consular Information Sheet on Algeria](#)

[U.S. State Department Profile on Algeria](#)

Foreign Government Agencies

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Global Insight

International Crude Oil Market Handbook

International Oil Daily

Middle East Economic Digest (MEED)

Middle East Economic Survey (MEES)

Middle East Online

Natural Gas Week

Oil and Gas Journal

Oil Daily

OPEC Annual Statistical Bulletin

Petroleum Economist

Petroleum Intelligence Weekly

Platts Oilgram News

Reuters

World Gas Intelligence

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